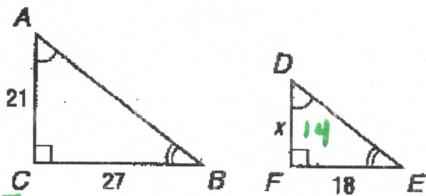


For #1-13, the pair of polygons are similar. Find the value of the variable(s).

1)



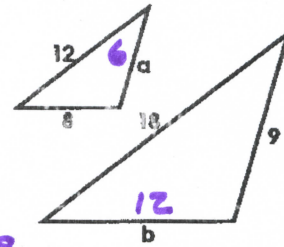
$$SF = \frac{27}{18} = \frac{3}{2}$$

$$\frac{AC}{DF} = \frac{3}{2} = \frac{21}{x}$$

$$x = 14$$

$$\begin{aligned} 3x &= 2 \cdot 21 \\ 3x &= 42 \\ x &= 14 \end{aligned}$$

2)



$$\frac{2}{3} = \frac{8}{b}$$

$$2b = 3 \cdot 8$$

$$2b = 24 \quad b = 12$$

$$a = 6$$

$$b = 12$$

$$SF = \frac{12}{18} = \frac{2}{3}$$

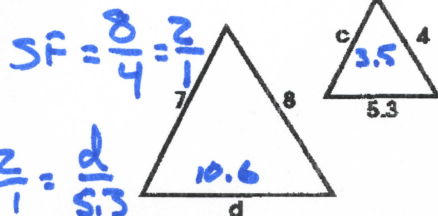
$$\frac{2}{3} = \frac{a}{9}$$

$$3a = 2 \cdot 9$$

$$3a = 18$$

$$a = 6$$

3)



$$SF = \frac{8}{4} = \frac{2}{1}$$

$$\frac{2}{1} = \frac{d}{5.3}$$

$$d = 2 \cdot 5.3$$

$$d = 10.6 \quad c = 3.5 \quad d = 10.6$$

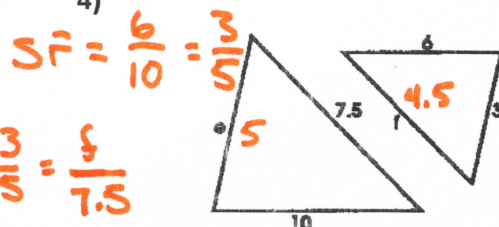
$$\frac{2}{1} = \frac{7}{c}$$

$$2c = 7 \cdot 1$$

$$2c = 7$$

$$c = 3.5$$

4)



$$SF = \frac{6}{10} = \frac{3}{5}$$

$$\frac{3}{5} = \frac{f}{7.5}$$

$$5f = 3 \cdot 7.5$$

$$5f = 22.5$$

$$f = 4.5$$

$$e = 5$$

$$f = 4.5$$

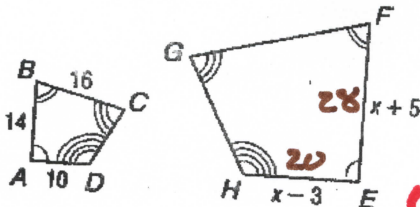
$$\frac{3}{5} = \frac{3}{e}$$

$$3e = 3 \cdot 5$$

$$3e = 15$$

$$e = 5$$

5)



$$\frac{DA}{HE} = \frac{AB}{EF}$$

$$\frac{10}{x-3} = \frac{14}{x+5}$$

$$10(x+5) = 14(x-3)$$

$$10x + 50 = 14x - 42$$

$$50 = 4x - 42$$

$$92 = 4x$$

$$23 = x$$

$$x = 23$$

6)



$$x = 4\frac{1}{3}$$

$$\frac{BA}{FE} = \frac{CD}{GH}$$

$$\frac{(x+1)}{8} = \frac{(x-1)}{5}$$

$$8(x-1) = 5(x+1)$$

$$8x - 8 = 5x + 5$$

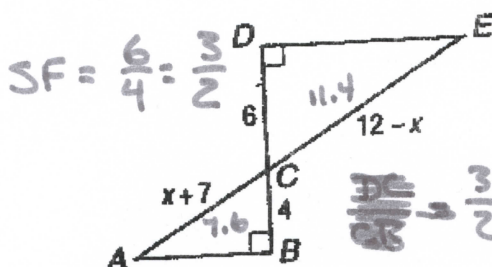
$$3x - 8 = 5$$

$$3x = 13$$

$$x = \frac{13}{3}$$

$$= 4\frac{1}{3}$$

7)



$$SF = \frac{6}{4} = \frac{3}{2}$$

$$\frac{DE}{EF} = \frac{3}{2} = \frac{(12-x)}{(x+7)}$$

$$3(x+7) = 2(12-x)$$

$$3x + 21 = 24 - 2x$$

$$5x + 21 = 24$$

$$x = \frac{3}{5} \text{ or } 0.6$$

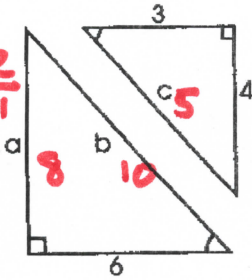
$$5x = 3$$

$$x = \frac{3}{5} = 0.6$$

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8)

$$SF = \frac{6}{3} = \frac{2}{1}$$



$$\frac{2}{1} = \frac{a}{4}$$

$$1a = 2 \cdot 4$$

$$a = 8$$

$$\frac{2}{1} = \frac{b}{5}$$

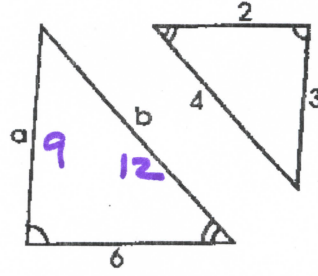
$$1b = 2 \cdot 5$$

$$b = 10$$

$$c = 5, a = \underline{8} \quad b = \underline{10}$$

9)

$$SF = \frac{6}{2} = \frac{3}{1}$$



$$\frac{3}{1} = \frac{a}{3}$$

$$a = 3 \cdot 3$$

$$a = 9$$

$$\frac{3}{1} = \frac{b}{4}$$

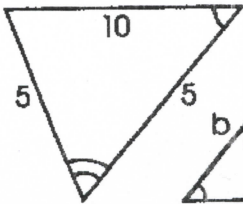
$$b = 3 \cdot 4$$

$$b = 12$$

$$a = \underline{9} \quad b = \underline{12}$$

10)

$$SF = \frac{5}{2}$$



$$\frac{5}{2} = \frac{10}{a}$$

$$5a = 2 \cdot 10$$

$$5a = 20$$

$$a = 4$$

$$\frac{5}{2} = \frac{5}{b}$$

$$a = \underline{4} \quad b = \underline{2}$$

11)

$$SF = \frac{3}{1}$$



$$\frac{3}{1} = \frac{a}{2}$$

$$a = 3 \cdot 2$$

$$a = 6$$

$$\frac{3}{1} = \frac{b}{6}$$

$$3b = 1 \cdot 6$$

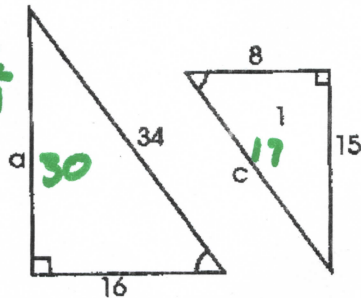
$$3b = 6$$

$$b = 2$$

$$a = \underline{6} \quad b = \underline{2}$$

12)

$$SF = \frac{16}{8} = \frac{2}{1}$$



$$\frac{2}{1} = \frac{34}{c}$$

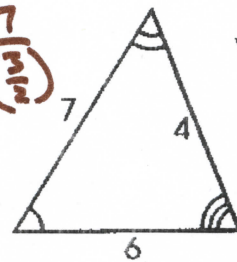
$$2c = 34$$

$$c = 17$$

$$a = \underline{30} \quad c = \underline{17}$$

13)

$$SF = \frac{7}{\left(\frac{3}{2}\right)}$$



$$\frac{7}{\left(\frac{3}{2}\right)} = \frac{6}{a}$$

$$7a = 6 \left(\frac{3}{2}\right)$$

$$7a = 9$$

$$a = \frac{9}{7}$$

$$a = \underline{\frac{9}{7}} \quad b = \underline{\frac{6}{7}}$$

$$\frac{7}{\left(\frac{3}{2}\right)} = \frac{4}{b}$$

$$7b = 6$$

$$7b = 4 \left(\frac{3}{2}\right)$$

$$b = \frac{6}{7}$$